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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/821,981	Applicant(s) ONG ET AL.	
	Examiner Ian N. Moore	Art Unit 2661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-69* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23,25-31,33-61 and 63-69* is/are rejected.

7)☒ Claim(s) *24,32 and 62* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. An objection to the abstract is withdrawn since it is being amended accordingly.

2. Claim rejection under 35 USC § 112 second paragraph, on claims 35-40,48,49 and 51are withdrawn since they are being amended accordingly.

3. Claims 1-23,25-31,33-61,63-69 are rejected by the new and same ground(s) of rejections

Claim Objections

4. Claim 21,25,26,54 and 55 are objected to because of the following informalities:

Claim 21 recites, "...**said** sets of channels..." in lines 12. There is insufficient antecedent basis for this limitation in the claim.

Claim 25 recites, "...wherein the connection configurations programmed on the sets of working channels of two different ones of **said spans** **<u>differ</u>**." in lines 3-4. The word "differ" should be revised for clarity.

Claim 26, 54, and 55 are also objected for the same reason as stated above in claim 25. Appropriate correction is required.

<u>New Grounds of Rejections</u>

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-23,25-31,33-61, and 63-69 are rejected under 35 U.S.C. 102(b) as being anticipated by Ogura (US005517489A).

Regarding Claim 1, Ogura discloses an apparatus (see FIG. 1) comprising:

a network element (see FIG. 1, Node A; and also see FIG. 4, SDH 2-fiber ring optical multiplexing device) to be coupled to a first (see FIG. 1, span between Node A and D on west side) and second span (see FIG. 1, span between Node A and B on east side) of a plurality of spans that interconnect a set of network elements (see FIG. 1, spans between Node A-D) to form a ring network (see FIG. 1, SDH 2-fiber ring optical network); see col. 5, lines 60-67; see col. 7, lines 1-30),

each of said plurality of spans having two sub-spans (see FIG. 2 or 4; E/O 3 of transmit span and O/E 4 of receive span; see col. 6, lines 25-40; see col. 7, lines 20-25) on which traffic travels in opposite directions (see FIG. 6, transmit and receives traffic travels in clockwise/counterclockwise direction; see col. 6, lines 41-57; see col. 7, lines 46-55) on a plurality of channels that circumvent said ring (see FIG. 1, Time slots TS#K), each said plurality of channels including working channels and protecting charnels (see FIG. 6, n and m time slots), said network element including,

a traffic handler (see FIG. 4, a combined system of Receiving Control 11, transmitting control 12 and add/drop multiplexing 9 and 10) to reprogram, responsive to protection switches and un-switches (see col. 7, lines 6-12,20-45), the connection configuration on the protecting channels of the sub-spans of the first and second spans that provide traffic to the network element (see col. 7, lines 42-63; see col. 8, lines 15-33; see col.

9, lines 35-42; note that when the protection channels are utilized (e.g. m<n or m>n) when a failure occurs/clears).

Regarding Claims 2, 35, 38 and 40, Ogura discloses responsive to a protection switch, two different connection configurations are programmed on the protecting channels of the sub-spans of the first and second spans that provide traffic to the network element (see FIG. 6 and 11, due to SDH protection switching (i.e. APS switching), protection channels (where m<n or m>n) are used in clock/counterclockwise direction in East (i.e. first connection) and west side (i.e. second connection) of the network element; see col. 7, lines 35-60; see col. 9, lines 30 to col. 10, lines 10). Note that a sub-ring is a collective of spans (i.e. a combined span between node A-B and A-C), thus the same rejection applies to the sub-ring.

Regarding Claim 3, 36, 37 and 39, Ogura discloses responsive to a protection switch, the same connection configuration is programmed on the protecting channels of the sub-spans of the first and second spans that provide traffic to the network element (see FIG. 6 and 11, due to SDH protection switching (i.e. SONET/SDH APS switching), the same protection channels (where m=n) are used in clock/counterclockwise direction in East and west side of the network element; see col. 7, lines 35-60; see col. 9, lines 30 to col. 10, lines 10. Note that sub-ring is a collective of spans (i.e. a combined span between node A-B and A-C, thus the same rejection applies to the sub-ring.

Regarding Claim 4, Ogura discloses responsive to a protection un-switch, two different connection configurations are programmed on the protecting channels of the sub-spans of the first and second spans that provide traffic to the network element (see FIG. 6 and

11, due to SDH protection un-switching (i.e. SONET/SDH reverted APS switching), protection channels (where m<n or m>n) used in clock/counterclockwise direction in East (i.e. first connection) and west side (i.e. second connection) of the network element would have been reverted into prior (to the failure) configuration; see col. 7, lines 35-60; see col. 9, lines 30 to col. 10, lines 10).

Regarding Claims 5 and 50, Ogura discloses responsive to a protection un-switch, the same connection configuration is programmed on the protecting channels of the sub-spans of the first and second spans that provide traffic to the network element (see FIG. 6 and 11, due to SDH protection un-switching (i.e. SONET/SDH reverted APS switching), the same protection channels (where m=n) used in clock/counterclockwise direction in East and west side of the network element would have been reverted into prior (to the failure) configuration; see col. 7, lines 35-60; see col. 9, lines 30 to col. 10, lines 10.

Regarding Claims 6 and 45, Ogura discloses wherein said traffic handler includes a connection table generator (see FIG. 17, time slots/channels table; also see FIG. 20, traffic control table; see col. 11, lines 52 to col. 12, lines 9; see col. 15, lines 36-45) to communication connection configuration information (see FIG. 11, command I) with others of said plurality of network elements (see FIG. 1, 11, and 17; communicate with other nodes; see col. 9, lines 48-65; see col. 12, lines 30-55).

Regarding Claims 7, 14,33, 43,52,63 and 69, Ogura discloses wherein said ring network is a modified bi-direction lines switched ring (see FIG. 6, a ring that switches lines in both East and West (clockwise and counterclockwise) direction with channels m>n, m>n, or m=n; see col. 7, lines 42-63).

Regarding Claims 8 and 42, Ogura discloses wherein said network element further includes: a first set of structures (see FIG. 17, 1st and last column of time slots/channels table, spans A-B and C-A) to store the connection configurations programmed on the working and protecting channels of the sub-spans of the first and second spans that provide traffic to the network element (see col. 11, lines 52 to col. 12, lines 9; also see FIG. 20, traffic control table; see col. 15, lines 36-45); and

a second set of structures (see FIG. 17, 2nd column of time slots/channels table, B-C, for remote span B-C not directly connected to node A) to store the connection configurations programmed on the working channels of those of said plurality of spans not directly connected to the network element (see col. 11, lines 52 to col. 12, lines 9; also see FIG. 20, traffic control table; see col. 15, lines 36-45).

Regarding Claims 9 and 44, Ogura discloses an apparatus (see FIG. 1) comprising:

a network element (see FIG. 1 and 17, Node A; and also see FIG. 4, SDH 2-fiber ring optical multiplexing device) coupled to a first (see FIG. 1, span between Node A and D on west side) and second span (see FIG. 1, span between Node A and B on east side) of a plurality of spans that interconnect a set of network elements (see FIG. 1, spans between Node A-D) to form a ring network (see FIG. 1, SDH 2-fiber ring optical network); see col. 5, lines 60-67; see col. 7, lines 1-30), each of said plurality of spans having two sub-spans (see FIG. 2 or 4; E/O 3 of transmit span and O/E 4 of receive span; see col. 6, lines 25-40; see col. 7, lines 20-25) on which traffic travels in opposite directions (see FIG. 1, clockwise and counterclockwise; see col. 6, lines 41-57; see col. 7, lines 46-55), on a plurality of channels (see FIG. 1, Time slots TS#K) that circumvent said ring, each said plurality of channels

including working channels and protecting channels (see FIG. 6, n and m time slots), said network element including a machine readable medium having stored thereon instructions, which when executed by a set of one or more processors, cause said set of processors to perform operations including,

storing in a first set of structures (see FIG. 17, 1st and last column of time slots/channels table, spans A-B and C-A) connection configurations for the working and protecting channels programmed on the receiving side of the ports coupled to the sub-spans of the first and second spans (see col. 11, lines 52 to col. 12, lines 9; also see FIG. 20, traffic control table; see col. 15, lines 36-45); and

storing in a second set of structures (see FIG. 17, 2nd column of time slots/channels table, B-C, for remote span B-C not directly connected to node A) the connection configurations programmed on the working channels of those of said plurality of spans not directly connected to said node (see col. 11, lines 52 to col. 12, lines 9; also see FIG. 20, traffic control table; see col. 15, lines 36-45).

Regarding Claim 10, Ogura discloses wherein said storing in said first set of structures includes storing one connection configuration for both of the working and protecting channels on the receiving side of both of the ports coupled to sub-spans of the first and second spans (see FIG. 6 and 11, for SDH protection switching (i.e. SONET/SDH APS switching), the same channels (where m=n) for both working and protection are used in clock/counterclockwise direction in both East and west side of the network element are stored in the table; see col. 7, lines 35-60; see col. 9, lines 30 to col. 10, lines 10.)

Regarding Claim 11, Ogura discloses wherein said storing in said first set of structures includes storing one connection configuration for each of the working and protecting channels on the receiving side of both of the ports coupled to of the sub-spans of the first and second spans (see FIG. 6 and 11, for SDH protection switching (i.e. APS switching), the different channels (where m<n or m>n) for each working and protection are used in clock/counterclockwise direction in both East and west side of the network element; see col. 7, lines 35-60; see col. 9, lines 30 to col. 10, lines 10).

Regarding Claim 12, Ogura discloses wherein said storing in said first set of structures includes storing one connection configuration for both of the working and protecting channels on the receiving side of each of the ports coupled to sub-spans of the first and second spans (see FIG. 6 and 11, for SDH protection switching (i.e. SONET/SDH APS switching), the same channels (where m=n) for working and protection are used in clock/counterclockwise direction in both East and west side of the network element are stored in the table; see col. 7, lines 35-60; see col. 9, lines 30 to col. 10, lines 10.)

Regarding Claim 13, Ogura discloses wherein said storing in said first set of structures includes storing one connection configuration for each of the working and protecting channels on the receiving side of each of the ports coupled to of the sub-spans of the first and second spans (see FIG. 6 and 11, for SDH protection switching (i.e. APS switching), the different channels (where m<n or m>n) for each working and protection are used in clock/counterclockwise direction in East and west side of the network element; see col. 7, lines 35-60; see col. 9, lines 30 to col. 10, lines 10).

Regarding Claims 15 and 16, Ogura discloses a traffic handler (see FIG. 4, a combined system of Receiving Control 11, transmitting control 12 and add/drop multiplexing 9 and 10), to be coupled to said first and second set of structures (see FIG. 4, a combined system utilizes a table with data columns), to reprogram, responsive to protection switches and un-switches (see col. 7, lines 6-12,20-45; for SONET/SDH APS switching and reverted APS switching), the connection configurations for the protecting channels programmed on the receiving side of the ports coupled to of the sub-spans of the first and second spans (see col. 7, lines 42-63; see col. 8, lines 15-33; see col. 9, lines 35-42; note that when the protection channels are utilized (e.g. $m<n$ or $m>n$) when a failure occurs/clears).

Regarding Claim 17, Hermann discloses an apparatus (see FIG. 1) comprising:

a network element (see FIG. 1 and 17, Node A; and also see FIG. 4, SDH 2-fiber ring optical multiplexing device) to be coupled to a first (see FIG. 1, span between Node A and D on west side) and second span (see FIG. 1, span between Node A and B on east side) of a BLSR ring (see FIG. 6, a ring that switches lines in both East and West (clockwise and counterclockwise) direction; see col. 7, lines 42-63)), said network element including,

means for providing different connection configurations on the protecting channels of said first and second spans (see FIG. 4, a combined system of Receiving Control 11, transmitting control 12 and add/drop multiplexing 9 and 10) responsive to protection switches and un-switches (see col. 7, lines 6-12,20-45; see col. 7, lines 26-50,60 to col. 8, lines 30; also see col. 3, lines 20-65; note that when the protection channels are utilized (e.g. $m<n$ or $m>n$) when a failure occurs/clears).

Regarding Claim 18, Ogura discloses said means allows a first of said plurality of channels (see FIG. 6 and 11, protection and working channels) to be part of two different sized connections programmed on said first and second spans (see col. 7, lines 35-60; see col. 9, lines 30 to col. 10, lines 10; different sizes channels, m<n or m>n, are used in clock/counterclockwise direction in East and west side of the network element).

Regarding Claim 19, Ogura discloses where said means allows said first spans to have programmed thereon a concatenation of a plurality of the BLSR channels that is not programmed on said second span (see col. 7, lines 35-60; see col. 9, lines 30 to col. 10, lines 10; channels, m<n or m>n, (where n + m time slots can be either working channels or protection channels), thus when m>n, m channels in the bidirectional ring are used in clockwise/East side, which are not used in counterclockwise/west side of the network element. In SDH/SONET concatenation is a group of channels, and thus m channels are concatenated channels.)

Regarding Claim 20, Ogura discloses a storage means (see FIG. 17, time slots/channels table and see FIG. 20, traffic control table) for storing said different connection configurations (see col. 11, lines 52 to col. 12, lines 9; see col. 15, lines 36-45); and

a hardware control means (see FIG. 4, a combined system of Receiving Control 11, transmitting control 12 and add/drop multiplexing 9 and 10) for programming counterclockwise direction in East and west side of the network element (see col. 6, lines 41-57; see col. 7, lines 46-55; see col. 7, lines 42-63; see col. 8, lines 15-33; see col. 9, lines 35-

42; see FIG. 6, transmit and receives traffic travels in clockwise/counterclockwise direction; see col. 6, lines 41-57; see col. 7, lines 46-55).

Regarding Claim 21, Ogura discloses an apparatus (see FIG. 1) comprising:

a plurality of network elements (see FIG. 1, Node A-D; and also see FIG. 4, SDH 2-fiber ring optical multiplexing devices);

a plurality of spans interconnecting said plurality of network elements (see FIG. 1, spans between Node A-D) to form a ring (see FIG. 1, SDH 2-fiber ring optical network); see col. 5, lines 60-67; see col. 7, lines 1-30),

each of said plurality of spans having two sub-spans (see FIG. 2 or 4; E/O 3 of transmit span and O/E 4 of receive span; see col. 6, lines 25-40; see col. 7, lines 20-25) on which traffic travels in opposite directions (see FIG. 6, transmit and receives traffic travels in clockwise/counterclockwise direction; see col. 6, lines 41-57; see col. 7, lines 46-55);

a multiplexing ring transport network protocol operating on said ring (see FIG. 4, a combined system of add/drop multiplexing 9 and 10, Receiving Control 11, and transmitting control 12) providing a plurality of channels on each of said sub-spans (see FIG. 1, Time slots TS#K), each of said plurality of channels includes a set of working channels and a mutually exclusive set of protecting channels charnels (see FIG. 6, n and m time slots),

wherein a first connection configuration programmed on a first of said sets of channels is not the same as a second connection configuration programmed on a second of said sets of channels (see col. 7, lines 42-63; see col. 8, lines 15-33; see col. 9, lines 35-42; note that when the working channels are not the same as protection channels (e.g. m<n or m>n)).

Regarding Claim 22, Ogura discloses wherein said first set of channels and said second set of channels are respectively the set of working channels and the set of protecting channels on a same one of said sub-spans (see FIG. 6, see col. 7, lines 42-63; see col. 8, lines 15-33; see col. 9, lines 35-42; both working and protection channels are on the same direction clockwise/counterclockwise).

Regarding Claims 23 and 53, Ogura discloses the same connection configuration must be programmed on each of said sets of working channels (see FIG. 6 and 11, for SDH protection switching (i.e. SONET/SDH APS switching), the same working (and protection) channels (where m=n) are used; see col. 7, lines 35-60; see col. 9, lines 30 to col. 10, lines 10).

Regarding Claims 25 and 54, Ogura discloses wherein the same connection configurations must be programmed on the set of working channels of both sub-spans of any given one of said spans (see FIG. 6 and 11, for SDH protection switching (i.e. SONET/SDH APS switching), the same working (and protection) channels (where m=n) are used in East/west direction; see col. 7, lines 35-60; see col. 9, lines 30 to col. 10, lines 10), and wherein the connection configurations programmed on the sets of working channels of two different ones of said spans differ (see FIG. 6 and 11, for SDH protection switching (i.e. SONET/SDH APS switching), the different working (and protection) channels (where m>n or m<n) are used in West/east direction; see col. 7, lines 35-60; see col. 9, lines 30 to col. 10, lines 10.)

Regarding Claims 26 and 55, Ogura discloses wherein the connection configurations programmed on the sets of working channels of two different ones of said

spans differ, and wherein the connection configurations programmed on the set of working channels of each of the sub-spans of at least one of said spans differ (see FIG. 6 and 11, for SDH protection switching (i.e. APS switching), working channels (where m<n or m>n) are used in clock/counterclockwise direction in East (i.e. first one) and west side (i.e. second one) of the network element; see col. 7, lines 35-60; see col. 9, lines 30 to col. 10, lines 10).

Regarding Claim 27, Ogura discloses wherein said first set of channels and said second set of channels are the sets of working channels on two different ones of said sub-spans (see FIG. 6 and 11, for SDH protection switching (i.e. APS switching), working channels (where m<n or m>n) are used in clock/counterclockwise direction in East (i.e. first one) and west side (i.e. second one) of the network element; see col. 7, lines 35-60; see col. 9, lines 30 to col. 10, lines 10).

Regarding Claim 28, Ogura discloses wherein said two different ones of said sub-spans are part of a same one of said spans (see FIG. 6 and 11; see col. 7, lines 35-60; see col. 9, lines 30 to col. 10, lines 10; both O/E and E/O sub-spans for clockwise/counterclockwise directions are in the same span between two nodes).

Regarding Claim 29, Ogura discloses wherein said two different ones of said sub-spans are part of a two different ones of said spans (see FIG. 6 and 11; see col. 7, lines 35-60; see col. 9, lines 30 to col. 10, lines 10; both East/west O/E and West/east E/O sub-spans for clockwise/counterclockwise directions are in the different span between two nodes).

Regarding Claim 30, Ogura discloses wherein the same connection configuration must be programmed on each of said sets of working channels on which traffic travels in the same direction as said first set of channels (see FIG. 6 and 11, the same working channels

(where m=n) are used in clock/counterclockwise direction in East/west side of the network element; see col. 7, lines 35-60; see col. 9, lines 30 to col. 10, lines 10).

Regarding Claims 31 and 56, Ogura discloses wherein the same connection configuration must be programmed on the set of working channels of both sub-spans of any given one of said spans (see FIG. 6 and 11, the same working channels (where m=n) are used in clock and counterclockwise direction in East and west side of the network element; see col. 7, lines 35-60; see col. 9, lines 30 to col. 10, lines 10).

Regarding Claim 34, Ogura discloses an apparatus (see FIG. 1) comprising:

a plurality of network elements (see FIG. 1, Node A-D; and also see FIG. 4, SDH 2-fiber ring optical multiplexing devices);

a plurality of spans interconnecting said plurality of network elements (see FIG. 1, spans between Node A-D) to form a ring (see FIG. 1, SDH 2-fiber ring optical network); see col. 5, lines 60-67; see col. 7, lines 1-30),

each of said plurality of spans including two sub-spans (see FIG. 2 or 4; E/O 3 of transmit span and O/E 4 of receive span; see col. 6, lines 25-40; see col. 7, lines 20-25), said sub-spans forming two sub-rings (see FIG. 1, clockwise ring and counterclockwise ring; see col. 6, lines 41-57; see col. 7, lines 46-55), wherein a plurality of channels circumvent said ring on each of said sub-rings (see FIG. 1, Time slots TS#K), each of said plurality of channels including working channels and protecting channels (see FIG. 6, n and m time slots); and

a traffic handler (see FIG. 4, a combined system of Receiving Control 11, transmitting control 12 and add/drop multiplexing 9 and 10) on each of said plurality of

network elements that together reprogram the connection configurations (see col. 7, lines 6-12,20-45) of the protecting channels on at least certain of said sub-spans responsive to protection switches and un-switches (see col. 7, lines 42-63; see col. 8, lines 15-33; see col. 9, lines 35-42; note that when the protection channels are utilized (e.g. m<n or m>n) when a failure occurs/clears).

Regarding Claim 41, Ogura discloses wherein the same connection configuration must be provided on the working channels of every sub-span (see FIG. 6 and 11, working channels is always provided in the span), but said traffic handlers provide for a different connection configuration on the protecting channels (see FIG. 6 and 11, for SDH protection switching (i.e. APS switching), protection channels (where m<n or m>n) are different; see col. 7, lines 35-60; see col. 9, lines 30 to col. 10, lines 10).

Regarding Claim 46, Ogura discloses a method (see FIG. 12-15, method) comprising:

responsive to a failure (see col. 7, lines 1-25; see FIG. 11, Fault) in a span in a ring network (see FIG. 1 and 11, SDH 2-fiber ring optical network), indicating a protection switch to occur on said ring network (see col. 7, lines 1-25), wherein said ring network operates on a plurality of network elements (see FIG. 1 and 11, Nodes A-D or N1-N6) that participate as nodes of said ring network and that are connected by spans (see FIG. 1 and 11, spans between Nodes A-D or N1-N6) to form a ring (see FIG. 1 and 11, SDH 2-fiber ring optical network); see col. 5, lines 60-67; see col. 7, lines 1-30),

each of said plurality of spans including two sub-spans (see FIG. 2 or 4; E/O 3 of transmit span and O/E 4 of receive span; see col. 6, lines 25-40; see col. 7, lines 20-25) on

which traffic travels in opposite directions (see FIG. 6, transmit and receives traffic travels in clockwise/counterclockwise direction; see col. 6, lines 41-57; see col. 7, lines 46-55) on a plurality of channels (see FIG. 1, Time slots TS#K), each of said sub-spans coupled to a receiving side (see FIG. 2 or 4; O/E 4 and 1 of receive ports) and a transmitting side of ports on two different ones of said nodes (see FIG. 2 or 4; E/O 3 and 2 of transmit ports), said plurality of channels in each direction including a set of working channels and a set of protecting channels (see FIG. 6, n and m time slots); and

responsive to said protection switch, programming the receiving side of those of said ports that are coupled to operable sub-spans so that their protection channels have programmed thereon the connection configuration of the working channels programmed on the opposite direction sub-spans of said failed span (see col. 7, lines 42-63; see col. 8, lines 15-33; see col. 9, lines 35-42; see col. 9, lines 5-65; during protecting switching, the working channels are protected by the protecting channels so that the traffic can be routed in opposite direction away from the failure).

Regarding Claims 47 and 58, Ogura discloses where said programming includes: each of said node, selecting from a storage (see FIG. 17, time slots/channels table, see col. 11, lines 52 to col. 12, lines 9; and see FIG. 20, traffic control table; see col. 15, lines 36-45) of the connection configurations of the working channels of each of said spans the connection configuration of the working channels programmed on said failed span ((see FIG. 4, a combined system of Receiving Control 11, transmitting control 12 and add/drop multiplexing 9 and 10 performs selection and switching; see col. 7, lines 6-12,20-45; see col.

7, lines 42-63; see col. 8, lines 15-33; see col. 9, lines 35-42; see col. 9, lines 5-65; during protecting switching, the working channels from the failed links are selected).

Regarding Claims 48 and 59, Ogura discloses storing, prior to said indicating, in each of said plurality of network elements information identifying the connection configurations of the working channels of each of the spans not directly connected to that network element (see FIG. 17, 2nd column of time slots/channels table, B-C, for remote span B-C not directly connected to node A; see col. 11, lines 52 to col. 12, lines 9; also see FIG. 20, traffic control table; see col. 15, lines 36-45).

Regarding Claims 49 and 60, Ogura discloses prior to said storing, between said plurality of network elements said information (see FIG. 11, command I is communicated between nodes; see col. 9, lines 48-65; see col. 12, lines 30-55).

Regarding Claim 51, Ogura discloses wherein the state prior to the protection switch includes a connection configuration programmed on the protecting channels of a first of said spans that does not mirror a connection configuration programmed on the working channels of said first span (see FIG. 6 and 11, the number of protection and working channels (where m<n or m>n) are different; see col. 7, lines 35-60; see col. 9, lines 30 to col. 10, lines 10).

Regarding Claim 57 and 64, Ogura discloses machine-readable medium providing instructions that, when executed by a set of one or more processors, cause said set of processor to perform operations (see FIG. 12-15, method) comprising:

receiving, at a node (see FIG. 1 and 11, Node A-D or N1-N6) of a ring network (see FIG. 1 and 11, SDH 2-fiber ring optical network); see col. 5, lines 60-67; see col. 7, lines 1-

30), a first message (see FIG. 11, command I) indicating a protection switch (see col. 9, lines 48-65; see col. 12, lines 30-55),

wherein said ring network operates on a plurality of network elements that participate as nodes (see FIG. 1 and 11, Node A-D or N1-N6) of said ring network and that are connected by a plurality of spans (see FIG. 1 and 11, spans between Nodes A-D or N1-N6) to form a ring (see FIG. 1 and 11, SDH 2-fiber ring optical network); see col. 5, lines 60-67; see col. 7, lines 1-30), each span including two sub-spans (see FIG. 2 or 4; E/O 3 of transmit span and O/E 4 of receive span; see col. 6, lines 25-40; see col. 7, lines 20-25) on which traffic travels in opposite directions (see FIG. 6, transmit and receives traffic travels in clockwise/counterclockwise direction; see col. 6, lines 41-57; see col. 7, lines 46-55) on a plurality of channels (see FIG. 1, Time slots TS#K), said plurality of channels in each direction including a set of working channels and a set of protecting channels (see FIG. 6, n and m time slots); and

responsive to said first message, reprogramming a receiving side of a first port of said node (see FIG. 2 or 4; O/E 4 and 1 of receive ports) coupled to one of said sub-spans so that its protecting channels have programmed thereon the connection configuration of the working channels programmed on the opposite direction sub-span of a span identified by said first message (see col. 7, lines 42-63; see col. 8, lines 15-33; see col. 9, lines 35-42; see col. 9, lines 5 to col. 10, lines 40; protecting switching in accordance with command I).

Regarding Claim 61 and 66, Ogura discloses receiving, at said node, a second message indicating a protection un-switch (see FIG. 11, second I command, see FIG. 20, V command; see col. 9, lines 48-65; see col. 12, lines 30-55; see col. 14, lines 20-45;

SDH/SONET APS switching clear message); and responsive to said second message, reprogramming said receiving side of said first port to its state prior to the protection switch (see FIG. 6 and 11, due to SDH protection un-switching (i.e. SONET/SDH reverted APS switching), the channels used in clock/counterclockwise direction in East/west side of the network element would have been reverted into prior (to the failure) configuration; see col. 7, lines 35-60; see col. 9, lines 30 to col. 10, lines 10).

Regarding Claim 65, Ogura discloses receiving, prior to said storing see FIG. 17, time slots/channels table, see col. 11, lines 52 to col. 12, lines 9; and see FIG. 20, traffic control table; see col. 15, lines 36-45), from said plurality of network elements said connection configurations (see FIG. 11, command I is received; see col. 9, lines 48-65; see col. 12, lines 30-55).

Regarding Claims 67 and 68, Ogura discloses wherein said reprogramming includes reprogramming the protecting channels on a receiving side of two ports of the node (see FIG. 4, O/E 1 and O/E 4) with different connection configurations (see col. 7, lines 42-63; see col. 8, lines 15-33; see col. 9, lines 35-42; note that when the protection channels on receive side of ports utilizes two different connections (e.g. m<n or m>n) when a failure occurs/clears). Similarly, wherein said reprogramming responsive to said protection un-switch includes reprogramming the protecting channels on a receiving side of two ports of the node with different connection configurations (see FIG. 6 and 11, due to SDH protection un-switching (i.e. SONET/SDH reverted APS switching), the protection channels on receiver side of ports of the network element would have been reverted into prior (to the failure) configuration; see col. 7, lines 35-60; see col. 9, lines 30 to col. 10, lines 10).

Claim Rejections - 35 USC § 102 (e)

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claim 17 is rejected under 35 U.S.C. 102(e) as being anticipated by Hermann (US006606667B1).

Regarding Claim 17, Hermann discloses an apparatus (see FIG. 7) comprising:

a network element (see FIG. 7, Node A, B, C, or D) to be coupled to a first and second span (see FIG. 1, a span between Node A and D on west side and a span between Node A and B on east side) of a BLSR ring (see col. 7, lines 20; BLSR ring), said network element including,

means for providing different connection configurations on the protecting channels of said first and second spans responsive to protection switches and un-switches (see col. 7, lines 26-50,60 to col. 8, lines 30; also see col. 3, lines 20-65; setting different percentage of protecting channels/bandwidth in accordance with the traffic conditions).

Same Grounds of Rejections

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-5, 7, 17-23, 25-31, 33-34, 43, 46-48, 50, 52-61, 63-66, 68-69 rejected under 35 U.S.C. 102(b) as being anticipated by Takatori et al (US Patent 5,600,631).

With regard to claim 1 and 21, Takatori et al discloses node A (network element) that includes a controller (traffic handler) (column 5, lines 53-59 and column 6, lines 5863). As illustrated by Fig 3A, Takatori et al discloses lines pairs (plurality of spans) 30-1 and 31-1, 30-2 and 31-2, 30-3 and 31-3, and 30-4 and 31-4 that form a ring network (ring network / multiplexing ring transport network). Each node is connected to two lines pairs (first and second span). In each lines pair (each of said plurality of spans), such as 30-1 and 31-1 (having two sub-spans), traffic travels in the clockwise and counterclockwise directions (traffic travels in opposite direction). Takatori et al further discloses a plurality of channels (plurality of channels) that include working (working channels) and protection (protecting channels) (column 7, lines 45-49 and 53-63). In the case a failure occurs in the working lines 30-4 and 31-4 between nodes A and B as shown in Fig lA, the span-switching (protection switches / unswitches) is applied (column 6, lines 39-47).

With regard to claim 2, 3, 4 and 5 in the case a failure occurs in the working lines 30-4 and 31-4 between nodes A and B as shown in Fig 7A, the span-switching (protection switch I unswitch) is applied. The controller 28 controls the space division switch 7 to connect the signal to be received from protection lines 32-4 (first configuration) in place of working lines 30-4 (second configuration) (column 6, lines 3947). Prior to the failure the same configuration would have been applied to 32-4 and 304.

With regard to claim 7, 33, 43, 52, 63 and 69 Takatori et al discloses that the ring network is BLSR (bi-directional lines switching ring) (column 5, lines 11).

With regard to claim 17, Takatori et al discloses node A (network element) that includes a controller (column 5, lines 53-59 and column 6, lines 58-63). As illustrated by Fig 3A, Takatori et al discloses lines pairs (plurality of spans) 30-1 and 31-1, 30-2 and 31-2, 30-3 and 31-3, and 30-4 and 31-4 that form a ring network. Takatori et al discloses that the ring network is BLSR (BLSR ring) (column 5, lines 11). Each node is connected to two lines pairs (first and second span). In the case a failure occurs in the working lines 30-4 and 31-4 between nodes A and B as shown in Fig 7A, the spanswitching (protection switches I unswitches) is applied. The controller 28 controls the space division switch 7 to connect the signal to be received from protection lines 32-4 in place of working lines 30-4 (different configurations) (column 6, lines 39-47).

With regard to claim 18, the first and second spans disclosed by Takatori et al may have a different bandwidth (different sized connections).

With regard to claim 19 and 20, in the case a failure occurs in the working lines 30-4 and 31-4 between nodes A and B as shown in Fig 7A, the span-switching (protection switches I

unswitches) is applied. The controller 28 (hardware control means) controls the space division switch '7 to connect the signal to be received from protection lines 32-4 in place of working lines 30-4 (column 6, lines 39-47). A memory is inherent part of controller 28 as a memory is inherent to a processor. The usage of channels (concatenation) between nodes A and B is different (not programmed) from channel usage between A and D.

With regard to claim 22, Takatori et al further discloses a plurality of channels (plurality of channels) that include working (working channels) and protection (protecting channels) (column 7, lines 45-49 and 53-63).

With regard to claim 23, 25, 54 and 56, Takatori et al does not distinguish configurations among working channels (working channels) (column 7, lines 45-49 and 53-63).

With regard to claim 26 and 55, in the case a failure occurs in the working lines 30-4 and 31-4 between nodes A and B as shown in Fig 7A, the span-switching is applied. The controller 28 controls the space division switch 7 to connect the signal to be received from protection lines 32-4 in place of working lines 30-4 (connection configurations programmed on the sets of working channels of two different ones of said spans differ) (column 6, lines 39-47). The use of working channels between nodes A and B is different from the use of working channels between nodes A and D (connection configurations ... each of sub spans of at least one of said spans differ).

With regard to claim 27 and 28, each node is connected to two lines pairs. In each lines pair (spans), such as 30-1 and 31-1 (two different ones of said sub-spans I part of same one of said spans), traffic travels in the clockwise and counterclockwise directions. Takatori et al further

discloses a plurality of channels that include working (working channels) and protection (column 7, lines 45-49 and 53-63).

With regard to claim 29, Takatori et al further discloses lines 30-4 and 30-1 (subspans part of two different ones of said spans) as illustrated by Figure 3A.

With regard to claim 30, Takatori et al discloses lines 30-1 and 32-1 (travels in same direction) as illustrated by Figure 7A. Takatori et al further discloses a plurality of channels that include working (working channels) and protection (column 7, lines 45-49 and 53-63).

With regard to claim 31, in each lines pair (spans), such as 30-1 and 31-1 (both sub-spans), traffic travels in the clockwise and counterclockwise directions. Takatori et al further discloses a plurality of channels that include working (working channels) and protection (column 7, lines 45-49 and 53-63).

With regard to claim 34, Takatori et al discloses node A (network element) that includes a controller (traffic handler) (column 5, lines 53-59 and column 6, lines 58-63). As illustrated by Fig 3A, Takatori et al discloses lines pairs (plurality of spans) 30-1 and 31-1, 30-2 and 31-2, 30-3 and 31-3, and 30-4 and 31-4 that form a ring network (multiplexing ring transport network). Each node is connected to two lines pairs (first and second span). In each lines pair (each of said plurality of spans), such as 30-1 and 31-1 (having two sub-spans), traffic travels in the clockwise and counterclockwise directions (traffic travels in opposite direction). Takatori et al further discloses a plurality of channels (plurality of channels) that include working (working channels) and protection (protecting channels) (column 7, lines 45-49 and 53-63). In the case a failure occurs in the working lines 30-4 and 31-4 between nodes A and B as shown in Fig 7A, the spanswitching (protection switch I unswitch) is applied. The controller 28 controls the space

division switch 7 to connect the signal to be received from protection lines 32-4 in place of working lines 30-4 (column 6, lines 39-47).

With regard to claim 46, 57 and 64, in the case a failure occurs (responsive to a failure) in the working lines 30-4 and 31-4 between nodes A and B (plurality of network elements) as shown in Fig 7A, the span-switching (protection switch / unswitch) is applied. Takatori et al discloses node A (network element) that includes a controller (programming / reprogramming) (column 5, lines 53-59 and column 6, lines 58-63). As illustrated by Fig 3A, Takatori et al discloses lines pairs (spans) 30-1 and 31-1, 30-2 and 31-2, 30-3 and 31-3, and 30-4 and 31-4 that form a ring network (ring). Each node is connected to two lines pairs (first and second span). In each lines pair (each of said plurality of spans), such as 30-1 and 31-1 (sub-spans), traffic travels in the clockwise and counterclockwise directions (opposite direction). Takatori et al further discloses a plurality of channels (plurality of channels) that include working (working channels) and protection (protecting channels) (column 7, lines 45-49 and 53-63).

With regard to claim 47, Takatori et al further discloses a plurality of channels that include working (working channels) and protection (column 7, lines 45-49 and 5363). In the case a failure occurs (on said fail) in the working lines 30-4 and 31-4 between nodes A and B as shown in Fig 7A, the span-switching (protection switch I unswitch) is applied. Takatori et al discloses node A that includes a controller (selecting ,.. configuration) (column 5, lines 53-59 and column 6, lines 58-63).

With regard to claim 48, Takatori et al discloses node A (network element) that includes a controller (identifying information) (column 5, lines 53-59 and column 6, lines 58-63).

With regard to claim 50, in the case a failure occurs in the working lines 30-4 and 31-4 between nodes A and B as shown in Fig 7A, the span-switching (protection switch I unswitch) is applied.

With regard to claim 53, Takatori et al further discloses a plurality of channels that include working (working channels) and protection (column 7, lines 45-49 and 5363).

With regard to claims 58-60 and 65, Takatori et al discloses node A that includes a controller (storing/storage) (column 5, lines 53-59 and column 6, lines 58-63). A memory is inherent part of controller 28 as a memory is inherent to a processor.

With regard to claim 61 and 66-68, in the case a failure occurs (second message) in the working lines 30-4 and 31-4 between nodes A and B (plurality of network elements) as shown in Fig 7A, the span-switching (protection switch /unswitch) is applied. Takatori et al further discloses a plurality of channels that include working (working channels) and protection (protecting channels) (column 7, lines 45-49 and 53-63).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 6-9, 11-16, 42, 44 and 45 are rejected under 35 U.S.C. 103(x) as being unpatentable over Takatori et al (US Patent 5,600,631) in view of Lu (US Patent 5,815,490).

With regard to claims 6, 8, 42, 44 and 45, Takatori et al does not expressly disclose a first set of structures to store and a second set of structures to store. Lu discloses a ring-provisioning table (table generator / first and second structures for storing) for the clockwise working channels 1-8 of a 4-node two fiber BLSR as illustrated by figures 5 and 6 (column 9, lines 58-61). Figure 6 shows the particular provisioning of one-way normal traffic that is carried by the clockwise working channels in the left to right directions (column 9, lines 66 -column 10, lines 4). Accordingly, both the direct and indirect connections are stored in the table.

A person of ordinary skill in the art would have been motivated to employ Lu in Takatori et al to because the multiplexing structure of the SDH ring table should be used for high order path management that is especially advantageous to manage ATM traffic (column 10, lines 4-9). At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains so as to obtain the invention as specified in claims 8 and 42.

With regard to claim 9, Takatori et al discloses node A (network element) that includes a controller (processor) (column 5, lines 53-59 and column 6, lines 58-63). As illustrated by Fig 3A, Takatori et al discloses lines pairs (plurality of spans) 30-1 and 311, 30-2 and 31-2, 30-3 and 31-3, and 30-4 and 31-4 that form a ring network (multiplexing ring transport network). Each node is connected to two lines pairs (first and second span). In each lines pair (each of said plurality of spans), such as 30-1 and 31-1 (having two sub-spans), traffic travels in the clockwise and counterclockwise directions (traffic travels in opposite direction). Takatori et al further discloses a plurality of channels (plurality of channels) that include working (working channels) and protection (protecting channels) (column 7, lines 45-49 and 53-63).

Takatori et al, however, does not expressly disclose a first set of structures to store and a second set of structures to store. Lu discloses a ring-provisioning table (first and second structures for storing) for the clockwise working channels 1-8 of a 4-node two fiber BLSR as illustrated by figures 5 and 6 (column 9, lines 58-61). Figure 6 shows the particular provisioning of one-way normal traffic that is carried by the clockwise working channels in the left to right directions (column 9, lines 66 - column 10, lines 4). Accordingly, both the direct and indirect connections are stored in the table.

A person of ordinary skill in the art would have been motivated to employ Lu in Takatori et al to because the multiplexing structure of the SDH ring table should be used for high order path management that is especially advantageous to manage ATM traffic (column 10, lines 4-9). At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains so as to obtain the invention as specified in claim 8.

With regard to claim 11, 12 and 13, as illustrated by Figure 6, the provisioning ring table stores working channel assignments for each node (column 9, lines 58-66). A similar table can be used for protecting channels.

With regard to claim 14, Takatori et al discloses that the ring network is BLSR (bi-directional lines switching ring) (column 5, lines 11).

With regard to claims 15 and 16, Takatori et al discloses node A that includes a controller (traffic handler) (column 5, lines 53-59 and column 6, lines 58-63). In the case a failure occurs in the working lines 30-4 and 31-4 between nodes A and B as shown in Fig 7A, the span-switching (protection switches I unswitches) is applied. The controller 28 controls the

space division switch 7 to connect the signal to be received from protection lines 32-4 (first configuration) in place of working lines 30-4 (second configuration) (column 6, lines 39-47).

Allowable Subject Matter

13. Claims 24, 32 and 62 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

14. Applicant's arguments with respect to claims 1-5,7,17-23,33-34,43,46-48,50,52-61,63-66 and 68-69 have been fully considered but they are not persuasive.

Regarding claim 1, the applicant argued that, "...the present embodiment aims at switching at a unit of STS-1...Takatori does not address the concept of programming "concatenations"...the claim 1 uses the terms "reprogram, responsive to...switches and unswitches" and targets the "connection configuration" on the "protection channels of the sub-spans of the first and second spans that provide traffic to the network element...to distinguish over the prior art..." in page 20, 1 and page 21, paragraph 2.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., **switching at a unit of STS-1... concatenations**) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the

specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Regarding the terms used in claim 1, Takatori discloses, "reprogram, responsive to...switches and unswitches" and targets the "connection configuration" on the "protection channels of the sub-spans of the first and second spans that provide traffic to the network element, as set forth above. In fact, these terms are well known in the art, and the concept of concatenations of traffic signals is also well known in the art, as it is disclosed in standards such GR-253-CORE (SONET/SDH generic criteria with APS switching) and GR-1230-CORE (BLSR generic criteria with APS switching), see attached.

Regarding claims 17-19, the applicant argued that, "...claim 17 requires...<u>different connection configuration</u> on the <u>protection channels</u> of said first and second spans responsive to protection switches and un-switches...claim 18 requires...<u>a first of said plurality of channels</u> to be part of two different sized <u>connections programmed on said first and second span</u>...claim 19 requires said means allows said first spans to have <u>programmed thereon a concatenation</u> of a plurality of the BLSR <u>channels that is not programmed</u> on said second span...incorrectly equating "concatenations" to "channels"..." in page 21, paragraph 5 and page 22, paragraph 1.

In response to applicant's argument, the examiner respectfully disagrees that the argument above.

Regarding claim 17, Takatori discloses the controller 28 that utilizes different connection configuration during protection switching by connecting signals to receive in protection lines 32-4 in place of working lines 30-4; see col. 6, lines 39-47. Regarding claim

18, Takatori discloses different channels bandwidth are configured/programmed on the first and second spans, thus, the working/protection channels/bandwidth on each spans have different size connection. Regarding claim 19, Takatori discloses, since the spans have different size channels/bandwidth, one set of channels in one span is not programmed or included in another span. "Concatenation of channels" is simply refers to "a group of channels" or "channels", thus, examiner interpretation is correct; see Takatori FIG. 7A, see col. 6, lines 39-47.

Regarding claim 21, the applicant argued that, "...claim 21 requires...wherein a first connection configuration programmed on a first of said sets of channels is not the same as second connection configuration programmed on a second said of channels..." in page 22, paragraph 2.

In response to applicant's argument, the examiner respectfully disagrees that the argument above. Takatori discloses a first connection configuration programmed on first of said sets of channels (i.e. plurality of channels on one span) is not the same as a second connection configuration programmed on second set of channels (i.e. plurality of channels on another span) since the spans have different size channels/bandwidth; see Takatori FIG. 7A, see col. 6, lines 39-47.

Regarding claim 34, the applicant argued that, "...claim 34 requires a traffic handler on each of said plurality of network elements that together reprogram the connection configuration of the protection channel on at lest certain of said sub-spans responsive to protection switches and un-switches..." in page 22, paragraph 3.

In response to applicant's argument, the examiner respectfully disagrees that the argument above. Takatori discloses a traffic handler (see FIG. 3A, controller) on each network elements (node A) that together reprogram the connection configuration of the protection channel (see col. 7, lines 45-49,53-63; protection channels) on at lest certain of said sub-spans responsive to protection switches and un-switches (see FIG. 7A, in case of a failure occurs in working lines 30-4 and 31-4 between node A and B, the span switching/un-switching occurs either clockwise/counterclockwise direction; see col. 6, lines 39-47. Moreover, as described in GR-253-CORE and GR-1230-CORE, the APS switching in BLSR ring with programming or reprogramming and switching or un-switching between working and protection channels are well known in the art.

Regarding claims 46, 57 and 64, the applicant argued that, "…requires…programming…ports...so that their protection channels have programmed thereon the connection configuration… the use of the term "port" and "thereon" distinguish the switching performed by switch…" in page 22, paragraph 4; page 23, paragraph 1-2.

In response to applicant's argument, the examiner respectfully disagrees that the argument above. Takatori discloses the controller 1 programs/configures the ports/interfaces 4-1 to 4-4 and 5-1 to 5-4 for connection configuration, FIG. 1 and see col. 7, lines 45-49,53-63. Thus, the use of the terms "ports" and "thereon" does not distinguish over Takatori.

Regarding claim 64, the applicant argued that, "…claim 64 requires… **storing** (or **storage of the connection**) connection configuration programmed on working channels on each span of said ring network not directly connected to said node…" in page 23, paragraph 2.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., **storing or storage of the connection**) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's argument, the examiner respectfully disagrees that the argument above. Takatori discloses connection configuration programmed on working channels on each span of said ring network not directly connected to said node in order to perform span and ring switching; see FIG. 4, 7A-B; see col. 5, lines 35 to col. 6, lines 5; col. 6, lines 40 to col. 7, lines 67. In fact, Takatori's network element or node inherently discloses storing mean or memory means for connection tables in since it is being used in the BLSR ring. Such table/memory includes the ring map or configurations tables, of every nodes in the ring, otherwise, the system will not be able to perform BLSR switching.

Regarding claim 6,8-9,42 and 44, the applicant argued that, "…applicant finds no discussion or illustration of Lu that address the issue of **concatenations**…requires storing a first set of structures…and a second set of structures…not directly connected…" in page 24, paragraph 3-4.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., **concatenation**) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's argument, the examiner respectfully disagrees that the argument above. Lu a ring table (which includes first structure (direct) and second structures with remote nodes which are not directly connected (indirect)) in FIG. 6,8 and 9A-B; also see col. 9, lines 58 to col. 10, lines 4). Thus, the combined system of Takatori and Lu discloses the above-argued limitations.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian N. Moore whose telephone number is 571-272-3085. The examiner can normally be reached on 9:00 AM- 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on 571-272-3126. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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